Pustules and dystrophy of the nails

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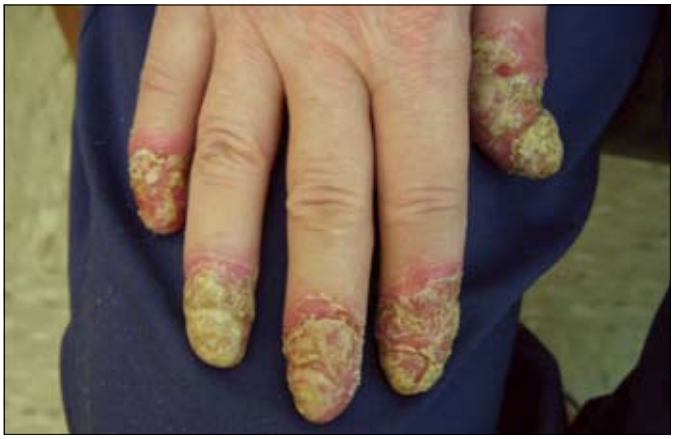

Figure 1. Patient's fingers at initial presentation showed multiple pustules, erythema, edema, and severe nail dystrophy.

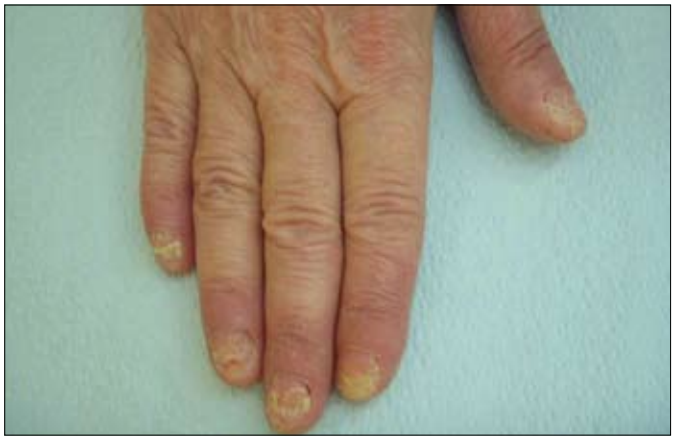

Figure 2. Patient's fingers after several months of therapy showed significant improvement.

A 57-year-old Caucasian woman came to the outpatient clinic with a complaint of a 3-month history of redness, pain, and itching of her left fifth digit involving the periungual skin, dorsal fingertip, and skin over her distal interphalangeal joint. Prior therapy consisted of subungual injectable steroids with considerable pain and minimal relief of symptoms. Subsequently she noticed that the left first, third, and fourth digits and all of the digits of the right hand were similarly affected.

Her past medical history was significant for asthma, depression, and fibromyalgia. Her family medical history was significant only for breast cancer in her mother. There was no family history of rash or chronic skin conditions. Her current medications included Estrostep, venlafaxine, and an albuterol inhaler as needed. She denied arthritic pain, fevers, chills, or any new sick contacts.

Physical examination showed severe nail dystrophy, periungual edema, erythema of the distal digits, inflammatory plaques, and multiple small pustules *(Figure 1)*. We also noted patches with silver scaling involving her right ear and her right elbow and localized small lesions on the legs that, on further questioning, had begun in the month before presentation.

Initial therapy consisted of psoralen and ultraviolet A light (PUVA) and subsequently an induction course of intravenous infliximab at 5 mg/kg on weeks 0, 2, and 6. Loratadine was added for itching relief. Minimal improvement was noted at 3 months, so the infliximab dose was increased to 7 mg/kg every 6 weeks. Methotrexate 10 mg/week was added at this time. She was also treated topically with Keralac and Aquaphor for skin protection. She showed some response with early nail regrowth and complete resolution of her ear, elbow, and leg lesions but still had persistent periungual edema and isolated pustules, so the infliximab dose was increased to 8 mg/kg intravenously every 6 weeks. She continued to improve, and topical tazarotene was added, as was clobetasone lotion around the cuticles twice daily. After 12 months of the current infliximab dose she had experienced significant resolution of disease, with three normal-appearing nails and only moderate dystrophy of the other nails.

Unfortunately, the patient then developed gastroenteritis and discontinued her methotrexate. Her liver function tests began to rise, resulting in discontinuation of the infliximab. The patient admitted to heavy alcohol use during this time. Within 6 months of discontinuing therapy, she developed a severe flare of her skin disease, with involvement of all 10 digits and new inflammatory lesions on her buttocks, back, legs, and elbows. At this point her laboratory studies had normalized and she denied

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any further alcohol use. Infliximab was then reinstituted at 5 mg/kg along with wet compresses twice daily and halobetasol ointment with occlusion. Over the next month the infliximab was increased to 7.5 mg/kg every 6 weeks, resulting in marked improvement in her skin and nails. She currently has only a mild degree of erythema, scaling, and nail dystrophy, with early evident proximal normal nail regrowth *(Figure 2).*

What is her diagnosis?

DIAGNOSIS: Acrodermatitis continua of Hallopeau.

DISCUSSION

Acrodermatitis continua was first described in 1888 by Crocker and was described in more detail by Hallopeau in 1890 (1). It is characterized by acute onset of painful erythema and sterile pustule formation in the distal portions of the fingers followed by scaling and crust formation. The pustules often involve the nail plate and periungual area with resulting nail dystrophy, which with a prolonged course of disease can lead to complete anonychia (1–3). Acrodermatitis often presents with a single digit but may involve all of the fingers and sometimes the toes. It can also spread proximally to involve the entire surface of the hand or foot and in rare instances the entire body. In those circumstances it is often associated with fever, malaise, and an elevated white blood cell count and sedimentation rate. In more benign cases the lesions can spontaneously resolve but will typically have a chronic recurring pattern (3).

Histologically, the lesions show upper dermal layer edema with neutrophilic collections between keratinocytes in the stratum corneum forming spongiform pustules of Kogoj and in the stratum spinosum (2, 3). Such changes are pathologically similar to psoriatic skin changes of the pustular variety, leading to the conclusion that acrodermatitis is a more resistant subtype of psoriasis. This conclusion is further supported by the natural history of acrodermatitis. Onset of the hand disease usually precludes later onset of psoriatic lesions in other areas of the skin, as in the patient described here.

Upon initial evaluation, other similar-appearing skin diseases should be considered. These include pompholyx (otherwise known as dyshidrotic eczema), contact dermatitis, bacterial or viral paronychia, vesicular tinea, and onychomycosis. Pompholyx and contact dermatitis do not involve the nail bed, unlike acrodermatitis continua. Infectious causes can be evaluated through appropriate culture and microscopy (1).

Until the early portion of this decade, little effective treatment for acrodermatitis continua existed. It was initially treated with agents that would interfere with neutrophil chemotaxis, such as colchicine, and chemotherapeutics including methotrexate (3). Corticosteroids have been used with some success, as has topical calcipotriene, a vitamin D analogue, especially when combined (4). Acitretin for a 6-month course has also shown some benefit (1). PUVA, cyclosporine, methotrexate, and 5-flourouracil have also been used with varying degrees of success.

As our understanding of the pathogenesis of this disease has evolved, treatment has included more specific targeted therapy. In 2004 the first successful treatment of this condition with the tumor necrosis factor (TNF)-alpha mouse-human chimeric monoclonal antibody infliximab was reported (5). Since then, etanercept, a dimeric fusion protein blocking the TNF-alpha receptor binding site, and infliximab have been used in multiple cases with reported improvement or resolution of disease (6, 7). Granulocyte and monocyte adsorption apheresis has also been used in Japan with similar success (8).

Our patient was treated with a combination of infliximab and methotrexate. This combination reduces the risk of developing antibodies to the 25% mouse portion of the drug in addition to improving efficacy. Elevated liver enzymes are a known side effect of infliximab, particularly in the psoriatic patient population, and a contraindication to further therapy, but with her concurrent alcohol use it could not be determined if infliximab caused the elevation (9). With reinitiation of infliximab, her liver function tests have remained normal.

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